What is claimed is:

1.   A channel data extracting circuit for
extracting data for each channel from a frame in which
byte data of channels are multiplexed, comprising:
      Banyan means for distributing data for
respective channels by Banyan switches of planes
corresponding to the channels and sequentially aligning
word data; and
      data control means for transmitting to said
Banyan means a control signal representing a channel to
which data belongs and controlling operations of the
Banyan switches.

2.   A circuit according to claim 1, wherein each
of the Banyan switches has a plurality of
multistage-connected 2 x 2 switches.

3.   A circuit according to claim 1, wherein the
Banyan switch sets data belonging to an own channel to
valid data and sequentially aligns only valid data, and
data belonging to another channel to invalid data.

4.   A circuit according to claim 1, wherein
      said channel data extracting circuit further
comprises packet detecting means for analyzing data
extracted for each channel to detect a boundary of a

5   packet inserted into a frame,

6   said data control means outputs a control

7   signal representing whether data is start data of a

8   packet, to said Banyan means on the basis of the

9   boundary of the packet detected by said packet detecting

10   means, and

11   said Banyan means outputs, in accordance with

12   the control signal from said data control means, start

13   data so as to be positioned at a start of word data

14   which constitutes a packet.

5.   A circuit according to claim 4, wherein said

2   Banyan means inserts idle data after final data of a

3   packet so as to position start data of the packet at a

4   start of word data.

6.   A circuit according to claim 1, further

2   comprising:

3   buffer means for holding data of respective

4   channels output from said Banyan means; and

5   data selecting means for sequentially reading

6   out and outputting the data held by said buffer means.

7.   An STM/Packet hybrid switch comprising:

2   an STM switch for performing switching

3   processing of an STM frame; and

4   a packet switch having a channel data

5 extracting circuit for extracting data of respective

6 channels from a frame in which byte data of channels are

7 multiplexed, said packet switch having a Banyan unit for

8 distributing data for respective channels by Banyan

9 switches of planes corresponding to the channels and

10 sequentially aligning word data, and a data control unit

11 for transmitting to the Banyan unit a control signal

12 representing a channel to which data belongs and

13 controlling operations of the Banyan switches,

14   wherein said 2 x 2 switches fragment for

15 respective channels an STM frame received from said STM

16 switch, and then performs switching processing for each

17 packet.

8.   A channel data extracting method of extracting

2 data for each channel from a frame in which byte data of

3 channels are multiplexed, comprising the steps of:

4   generating a control signal representing a

5 channel to which data belongs; and

6   distributing data for respective channels by

7 Banyan switches of planes corresponding to the channels

8 in accordance with the generated control signal, and

9 sequentially aligning word data.

9.   A method according to claim 8, wherein each of

2 the Banyan switches has a plurality of

3 multistage-connected 2 x 2 switches.

10.   A method according to claim 8, wherein the
distributing step comprises the steps of:

        setting data belonging to an own channel to
valid data;

        setting data belonging to another channel to
invalid data; and

        sequentially aligning only valid data by the
Banyan switches.

11.   A method according to claim 8, further
comprising the steps of:

        analyzing data extracted for respective
channels to detect a boundary of a packet inserted into
a frame,

        generating based on the detected boundary of
the packet a control signal representing whether data is
start data of a packet; and

        outputting, in accordance with the generated
control signal, start data so as to be positioned at a
start of word data which constitutes a packet.

12.   A method according to claim 11, further
comprising the step of inserting idle data after final
data of a packet so as to position start data of the
packet at a start of word data.

13.   A method according to claim 8, further
comprising the steps of:

        holding data aligned for respective channels;
and

        sequentially reading out and outputting the
held data.